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Substitute for form 1449A/PTO **Application Number** INFORMATION DISCLOSURE Filing Date STATEMENT BY APPLICANT JUH 2 5 2001 (use as many sheets as necessary)

Complete if Known 09/135,183 August 17, 1998 First Named Inventor Bamdad, C. JUN 2 8 2001 Group Art Unit 1631

**Examiner Name** Lundgren, J. A-65909-1/RMS/RMK Attorney Docket Number

				U.S. PATENT DOC	UMENTS	
Initials*	Cite No.1	U.S. Patent Documer		Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document	Pages, Columns, Lines, Where Relevant
			own)		MM-DD-YYYY	Passages or Relevant Figures Appear
My	1	4,704,193		Bowers et al.	11/1987	
	2	4,945,045		Forrest et al.	07/1990	
	3	5,089,112		Skotheim et al.	02/1992	
	4	5,180,968		Bruckenstein et al.	01/1993	
	5	5,356,786		Heller et al.	10/1994	
	6	5,391,272 •		O'Daly et al.	02/1995	
	7	5,436,161 °		Bergstrom et al.	07/1995	
	8	5,443,701		Willner et al.	08/1995	
	9	5,242,828		Bergstrom et al.	9/1993	
	10	5,552,270 •		Khrapko et al.	9/1996	
	11	5,741,700 •		Ershov et al.	4/1998	
	12	5756,050 >		Ershov et al.	5/1998	
pris	13	5,770,721 -		Ershov et al.	6/1998	

					FOREIGN PATENT DOCUMEN	VTS		
Examiner Initials*	Cite No.1	Foreign Office <sup>3</sup>	n Patent Document  Kind Co  Number <sup>4</sup> (if kno		Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T
ms	14	wo	86/05815	Al	Genetics International Inc.	3/1985		
1	15	wo	90/05303 •	Al	Pharmacia AB	05/1990		
	16	wo	95/34816	Al	Pharmacia Biosensor AB	12/1995		
	17	wo	96/10178	A1	Pharmacia Biosensor AB	04/1996		
	18	wo	97/27329	Al	Univ. of Chicago	7/1997		
	19	wo	97/41425	Al	Pence Inc.	11/1997		
	20	wo	98/27229	Al	Univ. of Chicago	6/1998		
	21	wo	98/28444	A2	Univ. of Chicago	7/1998		
M	22	wo	98/57159	A1	Clinical Micro Systems	6/1997		
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Sim	23	5,795,453	Gilmartin	08/1998	1.8.14 <del>1</del> .
1	24	5,851,772	Mirzabekov et al.	12/1998	
	25	6,060,023 •	Maracas	05/2000	
	26	6,060,327	Keen	05/2000	
	27	6,096,273	Kayyem et al.	08/2000	
	28	6,107,080	Lennox	08/2000	
	29	6,071,6990	Meade et al.	06/2000	
	30	6,087,100	Meade et al.	07/2000	
1	31	6,177,250 (	Meade et al.	01/2001	
	32	6,180,352	Meade et al.	01/2001	
	33	6,238,870 °	Meade et al.	05/2001	
M	34	6,200,761	Meade et al.	03/2001	
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					FOREIGN PATENT DOCUME	NTS		
Examiner Initials*	Cite No.1	Foreign l	Patent Docum		Name of Patentee or Applicant	Date of Publication of	Pages, Columns, Lines, Where Relevant	
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ans	35	Blonder et al., "Three-dimensional Redox-Active layered Composites of Au-Au, Ag-Ag and Au-Ag Colloids," Chem. Commun. 1393-1394 (1998).	
	36	Boon et al., "Mutation Detection by Electrocatalysis at DNA- Modified Electrodes," Nature Biotechnology, 18: 1096-1100 (October 2000).	
	37	Chee et al., "Voltammetry of defect sites at a self-assembled monolayer on a gold surface," J. of Electroanalytical Chemistry, 453: 9-17 (1998).	
	38	Drobyshev, A. et al., "Sequence Analysis by Hybridization with Oligonucleotide Microchip: Identification of β-thalassemia Mutations," Gene, 188:45-52 (1997).	
	39	Dubiley, S. et al., "Fractionation, phosphorylation and Ligation on Oligonucleotide Microchips to Enhance Sequencing by Hybridization," Nucleic Acids Research, 25(12):2259-2265 (1997).	
	40	Elghanian et al., "Selective Colorimetric Detection of Polynucleotides Based on the Distance-Dependent Optical Properties of Gold Nanoparticles," Science, 277:1078-1081 (1997).	
	41	Fotin, A. et al., "Parallel Thermodynamic Analysis of Duplexes on Oligodeoxyribonucleotide Microchips," Nucleic Acids Research, 216(6):1515-1521 (1998).	
	42	Guschin, D. et al., "Manual Manufacturing of Oligonucleotide, DNA, and Protein Microchips," Analytical Biochemistry, 250:203-211 (1997).	
	43	Guschin, D. et al., "Oligonucleotide Microchips as Genosensors for Determinative and Environmental Studies in Microbiology," 63(6):2397-2402 (1997).	
	44	Hess et al., "Base Pairing Properties of Novel Transition Metal PNA Conjugates," Journal of Inorganic Biochemistry, 74:161 (1999).	
	45	Hsuech et al., "Electrochemically Directed Self-Assembly on Gold," Angew. Chem. Int. Ed. 39(7): 1228-1230 (2000).	
	46	Kamat et al., J. Phys. chem., 93(4):1405-1409 (1989).	
	47	Livshits, M. et al., "Theoretical Analysis of the Kinetics of DNA Hybridization with Gel-Immobilized Oligonucleotides," Biophysical Journal, 71:2795-2801 (1996).	
	48	Mirkin et al., "A DNA-based Method for Ratioally Assembling Nonoparticles into Macroscopic Materials," Nature, 382:607-609 (1996).	
	49	Mirzabekov, A. et al., "Dna Sequencing by Hybridization - a Megasequencing Method and a Diagnostic Tool," Tibtech, 12:27-32 (1994).	
	50	Mitchell et al., "Programmed Assembly of DNA Functionalized Quantum Dots," J. Am. Chem. Soc., 121:8122-8123 (1999).	
MT	51	Mucic et al., "DNA-Directed Synthesis of Binary Nanoparticle Network Materials," J. Am. Chem. Soc., 120:12674-12675 (1998).	

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PTO/SB/8B (08-00)
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		OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS	_
Examiner Initials* Cite No.1		Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	
pres	52	Parinov, S., "DNA Sequencing by Hybridization to Microchip octa- and Decanucleotides Extended by Stacked Pentanucleotides," Nucleic Acids Research, 24(15):2998-3004 (1996).	
	53	Proudnikov, D. "Immobilization of DNA in Polyacrylamide Gel for the manufacture of DNA and DNA-Oligonucleotide Microchips," Analytical Biochemistry, 259:34-41 (1998).	
	54	Proudnikov, D. et al., "Chemical Methods of DNA and RNA Fluorescent Labeling," Nucleic Acids Research, 24(22):4535-4542 (1996).	
	55	Sloop et al., "Metalloorganic labels for DNA sequencing and mapping," New. J. Chem., 18: 317-326 (1994).	
	56	Storhoff et al., "One-Pot Colorimetric Differentiation of Polynucleotides with Single Base Imperfections Using Gold Nanoparticles Probes," J. Am. Chem. Soc., 120:1959-1964 (1998).	
	57	Timofeev, E. et al., "Regioselective Immobilization of Short Oligonucleotides to Acrylic Copolymer Gel," Nucleic Acids Research, 24(16): 3142-3148 (1996).	
	58	Timofeev, E. et al., "Methidium Intercalator Inserted into Synthetic Oligonucleotides," Tetrahedron Letters, 37(47):8467-8470 (1996).	
	59	Velev et al., "In Situ Assembly of Colloidal Particles into Miniaturized Biosensors," The ACS Journal of Surfaces and Colloids, Langmuir, 15(11):3693-3698 (1999).	
	60	Watson et al., "Hybrid Nanoparticles with Block Copolymer Shell Structures," J. Am. Chem. Soc., 121:462-463 (1999).	
M	61	Yershov, G. et al., "DNA Analysis and Diagnostics on Oligonucleotide Microchips," Proc. Natl. Acad. Sci. USA, 93:4913-4918 (1996).	
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